UNIVERSITY OF LEICESTER

Job Summary

Job Title: Lead Clinical Research Scientist
Grade: KTP
Salary: £38,000 - £40,000 (+£2,000 per year for Training and Development)
Department: School of Cardiovascular Sciences
Hours/Contract: Full Time, Fixed Term until 30th April 2029
Job Family: Teaching and Research
Reference: 14182

Project Description

This Knowledge Transfer Partnership (KTP) project between the University of Leicester and Carelight Limited (trading as Carelight Weartech) will support the development and validation of a next-generation AI-enabled wearable device based on Opto-Physiological Monitoring technology.

Carelight is a health-technology company developing AI-enabled devices that use a small optical sensor to project light onto the skin and analyse returning signals from underlying tissue. These signals provide insight into oxygenation, breathing rate and cardiac activity. Unlike conventional photoplethysmography wearables, which can struggle during movement and may perform less reliably across different skin tones, Carelight's patented OPM platform is designed to generate high-definition, motion-resistant physiological signals across varied skin tones, physiological conditions and real-world environments.

The project will focus on refining AI algorithms for real-time biomarker extraction, handling complex physiological datasets, supporting clinical validation, and embedding advanced analytical capability within Carelight. The long-term ambition is to support earlier detection of deterioration in stroke and cardiovascular patients, improve remote patient monitoring, and enable more personalised care in hospital, homecare and ambulatory settings.

Role Purpose

The KTP Associate will lead the clinical, scientific and technical delivery of the project, working at the interface of physiological measurement, signal processing, machine learning, clinical data interpretation and wearable medical technology.

You will be responsible for collecting, analysing physiological datasets, contributing to the refinement or further development of AI algorithms, supporting the integration of OPM technology into a wearable device, and helping develop scalable systems for data capture, validation and regulatory preparation.

The role will be primarily based at Carelight's premises in Loughborough, with periods of work at the University of Leicester for data collection, analysis and supervised laboratory activity. You will receive day-to-day supervision from the Company Supervisor and regular academic input from the University of Leicester team.

This role offers a unique opportunity to apply clinical (research) scientific and analytical expertise to a live commercial challenge with significant potential clinical, commercial and societal impact.

Project Description

This exciting Knowledge Transfer Partnership (KTP) between the University of Leicester and Carelight Limited (trading as Carelight Weartech) will drive the development of a pioneering AI-enabled

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wearable health-monitoring device based on Carelight's patented Opto-Physiological Monitoring (OPM) technology.

Carelight is an innovative health technology company transforming the way physiological data are captured and interpreted. Its breakthrough OPM platform uses advanced optical sensing to project light into the skin and analyse the returning signals from underlying tissue, generating rich physiological information related to oxygenation, respiratory rate, and cardiac activity. Unlike many conventional wearable technologies, which can be affected by motion and variations in skin tone, Carelight's patented approach is designed to deliver high-definition, motion-resistant physiological signals across diverse patient populations and real-world environments.

The project represents a unique opportunity to advance the frontiers of digital health, artificial intelligence, and remote patient monitoring. Working at the intersection of biomedical science, data analytics, and wearable technology, The project will support clinical validation activities that strengthen Carelight's in-house capability in advanced data science and digital health innovation. The partnership will also focus on supporting the development of AI algorithms capable of extracting clinically meaningful biomarkers from complex physiological data in real time

The longer-term vision is to transform patient monitoring and support earlier identification of clinical deterioration in stroke and cardiovascular patients. By enabling more continuous, personalised, and accessible monitoring, the technology has the potential to improve patient outcomes, enhance clinical decision-making, and support the growing shift towards connected healthcare across hospital, homecare, and ambulatory settings.

Role Purpose

The KTP Associate will play a pivotal role in delivering this strategically important and highly innovative project. Acting as the bridge between the University of Leicester and Carelight, you will lead the scientific and technical implementation of the programme while developing expertise at the interface of physiological measurement, signal processing, machine learning, clinical data interpretation, and wearable medical technology.

This is a rare opportunity to take ownership of a cutting-edge innovation project with significant clinical, commercial, and societal impact. You will work closely with leading academic researchers and industry experts to analyse complex physiological datasets, develop and refine AI-driven analytical tools, support the integration of OPM technology into next-generation wearable devices, and help establish robust systems for data acquisition, validation, and regulatory readiness.

Based primarily at Carelight's premises in Loughborough, with periods of activity at University of Leicester, you will benefit from a highly collaborative environment that combines academic excellence with commercial innovation. The role offers exceptional professional development opportunities, including exposure to product development, clinical research, artificial intelligence, regulatory processes, and technology commercialisation.

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For an ambitious clinical researcher, scientist, engineer, or data specialist eager to see their work translated into real-world healthcare solutions, this role offers the chance to make a tangible contribution to the future of patient monitoring and personalised medicine.

What makes this role unique

- You will lead a nationally recognised Innovate UK-funded programme.
- You will work on live commercial challenges, not theoretical exercises.
- You will help develop AI-enabled wearable health technology with the potential to improve remote monitoring for stroke and cardiovascular patients.
- You will contribute to a patented opto-physiological monitoring platform designed to address known limitations in current wearable technologies, including motion artefact and reduced accuracy across different skin tones.
- You will help embed new scientific, analytical and technical capability within a fast-growing health-technology company.
- You will receive structured training, mentoring and leadership development through the KTP programme.
- You will graduate from the role with a rare blend of technical, clinical, commercial and strategic experience.

Many KTP Associates go on to senior roles in industry, innovation leadership or academia. This role is designed to accelerate your career.

About the company you will be working with

Carelight Limited is an innovative health technology company at the forefront of next-generation patient monitoring. Through its patented Opto-Physiological Monitoring (OPM) platform and advanced AI capabilities, the company is developing a new generation of wearable devices that have the potential to transform how clinicians monitor patients across healthcare settings.

Its breakthrough technology uses sophisticated optical sensing to capture physiological signals associated with oxygenation, respiratory rate, and cardiac activity. The company's wrist-worn device is being designed to deliver continuous, wire-free monitoring in both hospital and home environments, providing clinicians with real-time, actionable insights while enhancing patient comfort, confidence, and independence.

Carelight's commercial strategy centres on partnering with leading medical device companies to accelerate adoption of its OPM technology and maximise its impact within the healthcare sector. As the company advances through clinical validation and regulatory approval, it is building momentum towards bringing a truly innovative monitoring solution to market.

With an ambitious vision for growth, Carelight aims to establish OPM as a new benchmark in physiological monitoring. Its strategic priorities include expanding partnerships across the healthcare ecosystem, completing clinical and regulatory milestones, and enabling large-scale deployment of its technology across hospital, homecare, community, and ambulatory care settings. By combining cutting-edge sensing technology with artificial intelligence, Carelight is positioning itself to play a significant role in the future of connected, patient-centred healthcare.

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About the University of Leicester

Our origins, over 100 years ago, speak to that very purpose – our founding father Dr Astley Clarke declared: *"Now, every material asset a person possesses may flee; education alone is an asset of which an individual cannot be robbed."*

We are unique as the only university in Europe founded by its community as a living memorial to those who made sacrifices in the First World War. A university built on the hope for a better future reflected in our motto: Ut vitam habeant – So that they may have life.

In over a century we have flourished to become a leading research-intensive university providing an inspiring education and student experience, and delivering world-changing research that improves people's lives.

As a comprehensive university, we offer a broad breadth of courses incorporating a spectrum of subjects in a suite of undergraduate, postgraduate and research programmes.

Our reputation speaks for itself – we are world renowned for our discoveries, for advancing the frontiers of knowledge and for tackling contemporary issues. Our league table standing places us among the leading UK universities.

We are value driven – we believe in inclusivity and in breaking down barriers to achievement. Your success is our success. Across different fields of endeavour, we encourage and support our students to be inspiring and to be impactful.

We are based in one of the most diverse cities in the UK and Europe and this has shaped our identity and mission: Diverse in our makeup and united in ambition – we pursue excellence in knowledge and learning to transform our community, our world and beyond.

We have an international reputation for excellence in cardiovascular research, with research spanning the full spectrum from bench to bedside. Our work has had a major impact on the treatment of patients nationally and globally.

We have strong links with the NHS, as illustrated by the award of a National Institute for Health Research Biomedical Research Centre with a Cardiovascular Disease theme. We have an excellent record in student training, and we are proud to have been awarded the Athena SWAN Gold Award.

About Knowledge Transfer Partnerships (KTPs)

For nearly 50 years, KTPs have been helping businesses innovate for growth. They do this by connecting enterprises that have an innovation idea with the expertise to help deliver it.

A KTP could be the perfect launchpad for you, helping enhance your career by managing a challenging project central to an enterprise's strategic development and long-term growth.

You will 'own' your own project, linked to both a university and an enterprise whose experienced teams will provide you with full support. Applying academic knowledge to a real-world challenge, this is a chance to deliver impact and shape your career, opening doors within both academia and industry.

Knowledge Transfer Partnership (KTP) Benefits

As a KTP Associate, you will receive:

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- A £2,000 annual personal training and development budget
- Supervision from world-leading academics and industry experts
- Full access to University of Leicester and KTP resources
- A unique opportunity to own a strategic innovation project central to Carelight's long-term growth.

Main Duties and Responsibilities

Research and Innovation

- Lead the design/delivery of clinical work for cardiovascular biomarker discovery using OPM technology, including protocols, data collection, and research documentation.
- Contribute to the analysis of complex physiological datasets generated through opto-physiological monitoring.
- Provide clinical input to the development/evaluation of algorithms used for biomarker extraction. Support the integration of OPM technology into a wearable medical device.
- Develop, evaluate and apply quantitative approaches for physiological clinical data analysis, supporting the interpretation of data findings in collaboration with the Carelight Team
- Specify the collection, evaluation and interpretation of research data from physiological and clinical validation activities.
- Contribute to the development of techniques, models, methods and analytical frameworks that can be embedded within Carelight.
- Support the generation of evidence required for device validation and regulatory preparation.
- Contribute to the dissemination of research findings through reports, presentations, conferences and peer-reviewed outputs where appropriate.

Impact and Knowledge Exchange

- Embed new clinical understanding, technical and analytical capability within Carelight through paired working, training and knowledge-transfer activities.
- Develop internal guidance documents, technical workflows and repeatable processes for data capture, analysis and validation.
- Support Carelight in creating a "living lab" environment focused on continuous testing, feedback and improvement.
- Communicate technical findings clearly to interdisciplinary audiences, including engineers, clinicians, commercial teams and external partners.
- Contribute to building long-term collaboration between Carelight, the University of Leicester and clinical stakeholders.
- Support Carelight's wider ambition to position OPM as a new industry standard for remote physiological monitoring.

Internal and External Relationships

- Be primarily based at Carelight's premises in Loughborough, working closely with company teams on day-to-day project delivery.
- Spend approximately 16% of the project duration at the University of Leicester for data collection, analysis and supervised laboratory work.
- Work under the joint supervision of the Company Supervisor and Academic Supervisor.
- Participate in weekly three-way remote meetings with company and academic supervisors.

- Attend monthly in-person meetings and Local Management Committee sessions to support formal oversight, risk management and strategic direction.
- Engage with interdisciplinary teams including engineers, clinicians, academics, commercial staff and external stakeholders.
- Act as a key interface between Carelight and the University of Leicester, ensuring effective communication and alignment of project objectives.

Planning and Organising

- Coordinate multiple project workstreams, including clinical validation, AI optimisation, physiological data analysis and knowledge transfer.
- Develop detailed action plans, milestones, timelines, risk registers and progress reports.
- Balance academic rigour with the commercial urgency of a fast-paced, pre-revenue start-up environment.
- Support the development of scalable systems for data capture, device validation and regulatory preparation.
- Monitor project progress and adapt plans in response to technical, operational or commercial developments.
- Contribute to formal reporting to the KTP Local Management Committee and relevant project stakeholders.
- Help manage project risks, dependencies and deliverables across academic and company environments.

Qualifications, Knowledge and Experience

We are looking for a curious, ambitious and impact-driven scientist who thrives on challenge.

Essential

- Master's degree in Life Sciences or a related relevant discipline (including but not limited to Clinical Research, Health Sciences, Biomedical Sciences)*.
- Demonstrate an understanding of relevant clinical pathways; where the device can be applied, tested, and deployed.
- Experience of handling datasets involving physiological measurement data*.
- Evidence of analytical problem-solving capability.
- Ability to collect, evaluate and interpret clinical research data*.
- Expertise in relevant analytical techniques, approaches or methods*.
- Ability to contribute to the development of techniques, critiques, models and methods and transfer these skills to Carelight.
- Ability to work with internal and external stakeholders, both independently and as part of a team*.
- Strong organisational skills, with the drive to lead and deliver a complex project.
- Proactive approach, with evidence of leadership potential

Desirable

- PhD in Life Sciences or equivalent industrial experience in clinical engineering, informatics, medical physics, physiological measurement or a related field.
- Experience in signal processing, machine learning, AI-enabled biomarker extraction or clinical data interpretation.
- Experience working with wearable technologies, medical devices, physiological monitoring or digital health tools.

- Evidence of contribution to peer-reviewed journal papers or equivalent research outputs.
- Experience of working on industry-related projects.
- Understanding of commercial drivers within health technology, digital health or medical-device development.
- Awareness of regulatory requirements relevant to clinical validation or medical-device development.
- Experience disseminating research findings at national or international conferences.
- Ability to program using Python, Java or C++

**Criteria to be used in shortlisting candidates for interview*

Skills, Abilities and Competencies

Essential

- Excellent written and spoken English communication skills*
- Able to present data in an easy-to-understand format which can be used to gain deeper insights into the topic of enquiry
- Ability to work as part of a team but also be "autonomous" when required*
- Competent at pitch delivery to diverse clients and customers at in-person and online events

Desirable

- Project management and business acumen
- Ability to work within a diverse development team comprising of academics and industrial partners and the wherewithal to impart new knowledge to the company team, embedding it through paired working, training and relevant 'how to' documents*
- Customer liaison skills
- Experience embedding new knowledge and capability within an industrial setting.
- Confidence in presenting scientific outputs to diverse audiences.

**Criteria to be used in shortlisting candidates for interview*

Reason for Fixed Term Contract

The reason for the fixed term contract is stated in section 1.9 in the summary of contractual terms in your contract of employment.

Criminal Declaration

If you become an employee, you must inform your manager immediately, in writing, if you are the subject of any current or future police investigations/legal proceedings, which could result in a criminal offence, conviction, caution, bind-over or charges, or warnings.

Supporting University Activities

As a University of Leicester citizen, you are encouraged to support key university activities such as clearing, graduation ceremonies, student registration and recruitment open days. We encourage all staff as citizens to work flexibly across the University if required. If supporting these activities is likely to affect your workload, please speak to your line manager in the first instance

University Values

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Inclusive - We are diverse in our makeup and united in ambition. Our diversity is our strength and makes our community stronger.

Inspiring - We are passionate about inspiring individuals to succeed and realise their ambitions. We challenge our community to think differently, to get involved, and to constantly embrace new ideas.

Impactful - As Citizens of Change we will generate new ideas which deliver impact and empower our community

Freedom of Speech

The University is committed to upholding freedom of speech and academic freedom within the law throughout our recruitment processes. We ensure that all candidates are considered based on merit and suitability for the role, without regard to their lawful viewpoints or the expression of challenging or controversial ideas. Our recruitment policies and practices are designed to protect applicants from discrimination or adverse treatment on the basis of their opinions, and to foster an environment where open debate and diverse perspectives are valued as essential to our academic mission.

Equity and Diversity

We believe that equity, diversity and inclusion is integral to a successful modern workplace. By developing and implementing policies and systems that challenge stereotypes across all aspects of our work, we have a culture that recognises and values the diverse contributions of our staff which benefits everyone. Our strong values of inclusivity and equality support our efforts to attract a diverse range of high quality staff and students, and identify our University as a progressive and innovative workplace that mainstreams equality, diversity and inclusion.